



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

16/ Reply Brief
09
5/18/07

In re application of: :
Baldwin : Art Unit: 2676
AN 09/591,226 : Examiner: Tung, Kee M.
Filed: 06/09/2000 : Atty's Docket: TD-156
For: AUTONOMOUS ADDRESS TRANSLATION IN GRAPHICS
SUBSYSTEM (confirmation no. 3469)

REPLY BRIEF

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Honorable Commissioner of Patents and Trademarks
Alexandria, VA 22313

MAY 13 2004
Technology Center 2600

Sir:

Enclosed is a reply brief for the above application. Four complete copies are included, three bound and one unbound. The reply brief is being filed in response to the Examiner's Answer mailed on 03/08/2004.

Any fee necessary for consideration of this paper has been authorized to be charged to Deposit Account Number 07-2320.

Respectfully submitted,

N. Elizabeth Pham, Reg.No. 49,042

Customer Number 29106

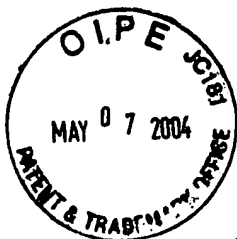
Attorney for Applicant

11330 Valley Dale Drive, Dallas TX 75230

214-363-3038

groover@technopatents.com

May 7, 2004



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Sir:

Appellant respectfully submits the following Reply to the new arguments presented in Examiner Tung's Answer mailed 03/08/2004.

RESPONSE TO NEW ARGUMENTS

In his response to the appeal brief filed on 02/06/2004, Examiner Tung raises the following new arguments:

1. With regard to Claim 3, Examiner Tung has suggested that the teachings of accessing memory by *Porterfield* can be considered as memory managing. However, this is incorrect. "Memory management" is a very well understood term of art, and refers to functions which are not the same as merely accessing memory.

For example, one reference source defines "memory management" as:

<memory management, storage> A collection of techniques for providing sufficient memory to one or more processes in a computer system, especially when the system does not have enough memory to satisfy all processes' requirements simultaneously. Techniques include swapping, paging and virtual memory. Memory management is usually performed mostly by a hardware memory management unit.¹

Another reference source defines "memory management" as follows:

Memory management is the art and the process of coordinating and controlling the use of memory in a computer system.

Memory management can be divided into three areas:

1. Memory management hardware (MMUs, RAM, etc.);
2. Operating system memory management (virtual memory, protection);
3. Application memory management (allocation, deallocation, garbage collection).

¹ (<http://dict.die.net/memory%20management/>; the source is stated to be "*The Free On-line Dictionary of Computing (09 FEB 02)*", and the date is stated as 1995-01-23.

Memory management hardware consists of the electronic devices and associated circuitry that store the state of a computer. These devices include RAM, MMUs (memory management units), caches, disks, and processor registers. The design of memory hardware is critical to the performance of modern computer systems. In fact, memory bandwidth is perhaps the main limiting factor on system performance.

Operating system memory management is concerned with using the memory management hardware to manage the resources of the storage hierarchy and allocating them to the various activities running on a computer. The most significant part of this on many systems is virtual memory, which creates the illusion that every process has more memory than is actually available. OS memory management is also concerned with memory protection and security, which help to maintain the integrity of the operating system against accidental damage or deliberate attack. It also protects user programs from errors in other programs.

Application memory management involves obtaining memory from the operating system, and managing its use by an application program. Application programs have dynamically changing storage requirements. The application memory manager must cope with this while minimizing the total CPU overhead, interactive pause times, and the total memory used.

While the operating system may create the illusion of nearly infinite memory, it is a complex task to manage application memory so that the application can run most efficiently. Ideally, these problems should be solved by tried and tested tools, tuned to a specific application.²

The online “Hyperdictionary” defines “Memory management” as:

A collection of techniques for providing sufficient memory to one or more processes in a computer system, especially when the system does

² This teaching is found at <http://www.memorymanagement.org/glossary/m.html#memory.management>.

not have enough memory to satisfy all processes' requirements simultaneously. Techniques include swapping, paging and virtual memory. Memory management is usually performed mostly by a hardware memory management unit.

Memory Management Unit - (MMU, "Paged Memory Management Unit", PMMU) A hardware device or circuit that supports virtual memory and paging by translating virtual addresses into physical addresses.³

The present application also states, "Virtual memory management, like cache management, is an important architectural design choice, and "memory management" logic often performs functions related to virtual memory management as well as to cache management."⁴ Further teachings also can be found in pages 20-21 of the appeal brief.

Also, Examiner Tung has suggested that Claim 3 does not recite any particular function of memory managing in the claim to distinguish it from the memory accessing of *Porterfield*. However, this also is incorrect:

A patent claim is construed by examining the claim in the context of the specification, drawing on the specification for an understanding of what is covered by the claim, and looking to the rejections, explanations, and revisions that comprise the record of the patent examination ... Thus a technical term is taken to have the meaning that it would ordinarily have in the field of the invention, unless it is shown that the inventor used the term with a special meaning and that persons of skill in the field would so understand the usage.⁵

³ This teaching is found at <http://www.hyperdictionary.com/dictionary/memory+management>.

⁴ Page 4, lines 21-24 of the present application.

⁵ *Pall Corp. v. Hemasure, Inc.*, 50 USPQ 2d 1947, 1949 (Fed. Cir. 1999).

Accordingly, if the term “memory management” is used in the claims without reciting any specific function, it will be given the ordinary meaning in the art unless the specification or prosecution history of the application appears to use it otherwise. In this case, the specification and the prosecution history of the present application, as well as the ordinary meaning in the art, all use the term “memory management” to describe a collection of techniques for providing sufficient memory to one or more processes in a computer system. Therefore, it cannot be maintained that memory management is the same thing as accessing memory.

Also, Examiner Tung’s suggestion that merely accessing memory could be considered as memory managing appears to be contradicted by his reference to the “*MMU performing by system logic 154*” in his discussion of Claim 6. Therefore, it appears that Examiner Tung does appreciate the significant difference between memory management and accessing memory.

2. With regard to Claim 2, the argument used by Examiner Tung would imply that every software in a computer system is user accessible because, at the very least, a programmer can program or reprogram the software. **However, a programmer is not the same thing as a user.** Many software programs, although created by a programmer, are designed to run on a computer system without the user even knowing about them, much less able to access them. This is particularly true of GART software. Examiner Tung has not provided any reference that teaches a “software, integrated on said chip, which has a user accessible mechanism in place to do logical-to-physical mapping into a main system memory.” The standard GART mapping mechanism used by *Porterfield* does not appear to be user accessible.

3. With regard to Claim 1, Examiner Tung appears to cite *In re Gurley* for the proposition that a known or obvious *composition* does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. However, *Gurley* is distinguished from the present application in the following ways:

Firstly, *Gurley* is a **chemical case** in the unpredictable arts. The present application relates to the predictable art of computer graphics. The word "composition" in *Gurley* is not incidental: *Gurley* is a composition case. Chemical compositions are not the same thing as computer graphics. The present application has nothing to do with compositions of matter.

Secondly, Examiner Tung has ignored the general rule announced in *Gurley*: the court AGREED with the general rule that a reference that 'teaches away' can not serve to create a prima facie case of obviousness.

The court did not follow the general rule in that particular case because the appellant, *Gurley*, had not distinguished his discovery from beyond what was known in the art. Therefore, an exception was made by the court:

On the facts of this case, *Gurley's* "teaching away" argument was insufficient to establish patentability. *Gurley* did not offer specific epoxies, or improved properties, and we are not presented with the question of whether any such products might meet the requirements of patentability. Even reading Yamaguchi's description as discouraging use of epoxy for this purpose, *Gurley* asserted no discovery beyond what was known to the art.⁶

In contrast, Appellant has established invention beyond the AGP model disclosed in *Peddada et al.* Examiner Tung, himself, has noted this by stating, "*Peddada fails to explicitly suggest or teach, selectively, when commanded by a software application, allowing said accelerator logic to read textures directly from said main memory without downloading them to said graphics memory.*"⁷ Examiner Tung also noted, "*Peddada uses a different way to achieve the benefit of AGP Execute model.*"⁸ Unlike *Gurley*, Appellant is not trying merely to patent a non-preferred embodiment

⁶ *In re Gurley*, 27 F.3d 551, 554 (Fed. Cir. 1994)(emphasis added).

⁷ Section 2 of Office Action mailed 06/04/2003.

⁸ *Ibid.*

that is known to the art. Accordingly, the general rule of law should be followed in this particular case as no exception has been established by Examiner Tung. Therefore, Appellant maintains that its teaching away argument, unlike that in *Gurley*, is sufficient to establish patentability.

REQUESTED RELIEF

The Board is respectfully requested to reverse the outstanding rejections.

Respectfully submitted,



N. Elizabeth Pham, Reg.No. 49,042

Customer Number 29106

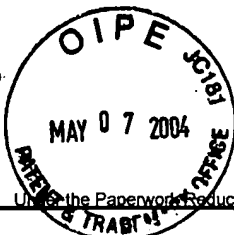
Attorney for Applicant

11330 Valley Dale Drive, Dallas TX 75230

214-363-3038

groover@technopatents.com

May 7, 2004



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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/591,226
	Filing Date	06/09/2000
	First Named Inventor	Baldwin
	Art Unit	2676
	Examiner Name	Tung, Kee M.
Total Number of Pages in This Submission	Attorney Docket Number	TD-156

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